□□□□□□□□□□□□□

□□□ □□□

□□□□

□□

□□

□□□

□□Universal Approximation Theorem □ Nash Embedding Theorems □□□

□□□□critique□□□□□□□□□□□ criticus □□□□□ κριτικός□□□ critical □ judgement □□□

□□

□□

□□□□□□□□□□□□□□□□

□□

□□□□□□□□□□□□ Turing Test□AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ dataset□□

□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo Zero □ superhuman □□□□□□ AlphaGo □□□□□□ AlphaZero□MuZero □□

□□□□□□□□□□□□□□□□□□□□□□ SAE level 4 □□□

□□□□□□□□□□□□□□□□□ ready□□□□□□□□□□□□□□□□□ ALphabet/Waymo □□□□□□□□□□□□ SAE level 4□□ SAE level 4 □□□□□□□□□□□□ ALphabet/Waymo □□

□□ □□□□□□□□□□

Reward Is Enough □□□□□□□□□reward □□□□□□□□□□□□□ reward □□□□ reward □□□□□□□□□□□□□ □□□□□□□□□□□□□□□□Reward □□□

□□□ □□□ SAE level 4 □□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□Nash Embedding Theorems □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Word-embedding Vector Space □□

□□□ □□□□

□□□ □□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□ □□□deep learning□ □□□□□reinforcement learning□□□□□□□□□□

□□□ □□□ reward□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□ □□□□□□□□□

□□□□□□□□□□□□□□□□

□□□ □□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□Universal Approximation Theorem □□□□□□□□□□□□□□□□□□□□□□ □□□ □□□□selfish gene □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□ □□□□□□

□□

□□

□□logical positivism □ logical empiricism□□□□□□□Positivism □ empiricism □□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□Category Theory□□□critique□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□ critique□□□critique □□□□□□□□□□□□□□□□□□□□

□□

□□□ IT □□

□□

1□□□ AlphaGo □□□

Deepmind □□ AlphaGo Zero □□□ AlphaGo □□

2□□

3□□□

4□□

□□ 1) □ 2) □□□□□□□□□ 3) □ 4) □□□□□□□□□□□ 1) □ 2) □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□

Leukotomy □□□□□□□□□□□□□□□□□□□□□□□□□□□ selfish gene □□□□□□□□□□□□□□□ Technological Singularity□potentially a meta-solution to any problem□Reward Is Enough □□□□□□□□□□□□□□□□□□□□□□liberal arts □□□□□□□□□□□□□□□□□□□□□□□□□

□□□

□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ A、B、C、D □□□□□□□□□□□

A. □□□□□□□□□□□□□

1. □□□

2. □□□□□□□□□□□□□□

3. □□□□ Chaitin's constant □□□□□□□□□□□□□□□□□□□□□□□□□□□

4. □□□□□□□□□□□□□□□□□□□□□□

5. □□□□□ 1 - 4 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

B. □□□□□□□□□□□□□□

6. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□relevance theory □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

7. □□□

8. Grigori Perelman □ Poincaré conjecture □□

9. Demis Hassabis □ AlphaGo □□□□□□□□□ intuition□□□□□□□□□□□ intuition □□□ Demis Hassabis □□□ AlphaGo □□□□ intuition □□□□□□□□ AlphaGo □□□□□□□□□□□□ a meta-solution to any problem□

10. □□ AlphaGo □□□□□□ Nature □□□□□□□ superhuman performance□□

C. □□□□□□□□□□□□□□□□

11. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ form □□□

12. □□□□□□□□□□□ motif □□

13. □□□□□□□□□□□"truth"□□□□□ truth□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□

14. □□□□□□□□□□ The Selfish Gene□□ The Immortal Gene□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

15. □□□□□□□□□□□□□□□□□□□□□□□□□□□□Freeman Dyson □□□□ Birds and Frogs □□ birds □ frogs □□□

16. □□□□□□□□□□□□Austrian School of Economics□□

17. □□□ selfish gene □□□

D. □□□□□□□□□□□□□□□□□□□□□□:

18. □□□

19. □□

20. □□□□□□"□□□□"□□□□□□□□□□□□□□□"□□□□□□□□□□□□□□□□"□□

21. □□ Turing Machine □□□deterministic, probabilistic, etc.□□□□□□□□□□□□□□□□□

22. □□ Turing Test □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ SAE level 4 □ level 5 □□

23. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ word-embedding vector space □ encoder-decoder, attention, transformer, BERT □□□

24. □□□□□□□□□□ deep-learning □□□□□□ deep residual networks □□□□□□generative adversarial networks, etc.□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

25. □□□□□□□□□□□□□□ Universal Approximation Theorem □□□ overfitting□underfitting □□□□□□□□□□□□□□□□□□□□□□□□ chaos phenomena □□□□□□□□□□□□□

26. □□□□ reward □□ Reward Is Enough □□□□□□□

27. □□□selfish gene □□

28. □□

□□□□□□□□□□□□□□□□□□

□□ Freeman Dyson □□

□□□

□□

□□□

□□□□□□"□□□□□□□□□"□□

□□

□□□□□□□□□□ AlphaGo □□ Nature □□□ SAE level 5 □□□□□□□□□SAE level 4 □□□□□□□□□□

□□

□□□

□□

□□The Selfish Gene □□□□□□□□□□□□□□□

□□ Freeman Dyson □□□□□□□□□□ a great bird□□□□□□□□□□ frog□□□□□□□□ bird □ frog □□ frog □□□□□□□□□□□□□□□□□□□ frog □□□□□□□□□□□□□□□□□□□□□□□ bird□

□□□

□□

Deepmind 的 Reward Is Enough

natural law